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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,505

12/22/2005

Ichihiko Takahashi

188-101

7936

7590

06/27/2006

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EXAMINER

AHMED, SHEEBA

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/562,505	TAKAHASHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sheeba Ahmed	1773	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/22/05</u> .  | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Preliminary Amendment***

1. The Preliminary amendment filed on December 22, 2005 has been entered in the above-identified application. Claims 1, 3-7 have been amended and new claims 8-20 have been added. **Claims 1-20 are now pending.**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites that the elongation of the outermost layer "is seventeen times or more as large as the amount of elongation of any other layer if present...". Such as recitation is ambiguous and appropriate clarification or correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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3. Claims 1, 2, 4, 5, 9, 10, 12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Bilder et al. (US 5,534,289).

Bilder et al. disclose a method for aiding in the early detection of cracks in a structure wherein the method provides a self-activating crack indication system visible to observers with minimal training and provides a non-destructive crack indication technique (Column 2, lines 27-34). The method utilizes microencapsulation using the envelopment of small solid particles, liquid droplets or glass bubbles within a coating (Column 2, lines 38-45). The method comprises applying a coating of a first color on the surface of the structure, said coating including microcapsules containing a second color and said microcapsules being subject to breakage upon occurrence of a crack in said structure and applying a second coating of a second color (Column 3, lines 1-15). The detailed description shows that the microcapsules comprise an oil soluble dye which are preferred because these do not degrade the paint (Column 3, lines 45-60). All limitations of claims 1, 2, 4, 5, 9, 10, 12, and 14 are disclosed in the above reference.

4. Claims 1, 2, 4-6, 9, 10, 12, 14-16, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Crites et al. (US 3,803,485).

Crites et al. disclose a method of detecting cracks wherein the method consists of applying a coating with entrapped reservoirs or chambers to which cracks will naturally propagate. The reservoirs are filled with an electrically conductive liquid which fills the cracks by capillary action that provides an electric current path thus changing the electrical characteristics of the coating and allowing one to monitor the cracking and

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noting the changes in electrical characteristics of the coating (column 2, lines 6-34).

When a fracture appears on the surface of a metal base, it propagates inwardly into the base metal and outwardly towards the coatings. The capsules lying in the path of the crack rupture and fill the crack with the electrically conductive liquid thus providing a current path between the base and the coating. The result is that the electrical resistance of the coating drops and is reflected in the reading of an ohmmeter thus allowing detection of the crack (Column 3, lines 10-60). All limitations of claim 1, 2, 4-6, 9, 10, 12, 14-16, 18, and 20 are disclosed in the above reference.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7-14, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bilder et al. (US 5,534,289) in view of Otsuka (US 4,624,709).

Bilder et al. disclose a method for aiding in the early detection, of cracks in a structure wherein the method provides a self-activating crack indication system visible to observers with minimal training and provides a non-destructive crack indication technique (Column 2, lines 27-34). The method utilizes microencapsulation using the envelopment of small solid particles, liquid droplets or glass bubbles within a coating (Column 2, lines 38-45). The method comprises applying a coating of a first color on the

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surface of the structure, said coating including microcapsules containing a second color and said microcapsules being subject to breakage upon occurrence of a crack in said structure and applying a second coating of a second color (Column 3, lines 1-15). He detailed description shows that the microcapsules comprises an oil soluble dye which are preferred because theses do not degrade the paint (Column 3, lines 45-60).

Bilder do not teach that the microcapsules contain nigrosine as the dye.

However, Otsuka discloses nigrosine dyes having a high compatibility with organic resins and solvents and that can be used as a charge control agent due to its electrostatic characteristics. The nigrosine dyes can be used as providing high concentration dyeing solutions and providing pigment compositions (Column 2, lines 28-37).

Accordingly, it would have been obvious to use nigrosine as the dye in the microcapsules and to optimize the amount of dye used in the microcapsules given that the higher the concentration of the dye in the microcapsule the better the detection of the crack.

6. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crites et al. (US 3,803,485) in view of Otsuka (US 4,624,709).

Crites et al. disclose a method of detecting cracks wherein the method consists of applying a coating with entrapped reservoirs or chambers to which cracks will naturally propagate. The reservoirs are filled with an electrically conductive liquid which fills the cracks by capillary action that provides an electric current path this changing the

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electrical characteristics of the coating and allowing one to monitor the cracking and noting the changes in electrical characteristics of the coating (column 2, lines 6-34). When a fracture appears on the surface of a metal base, it propagates inwardly into the base metal and outwardly towards the coatings. The capsules lying in the path of the crack rupture and fill the crack with the electrically conductive liquid thus providing a current path between the base and the coating. The result is that the electrical resistance of the coating drops and is reflected in the reading of an ohmmeter thus allowing detection of the crack (Column 3, lines 10-60).

Crites do not teach that the microcapsules contain nigrosine as the dye.

However, Otsuka discloses nigrosine dyes having a high compatibility with organic resins and solvents and that can be used as a charge control agent due to its electrostatic characteristics. The nigrosine dyes can be used as providing high concentration dyeing solutions and providing pigment compositions (Column 2, lines 28-37).

Accordingly, it would have been obvious to use nigrosine as the dye in the microcapsules and to optimize the amount of dye used in the microcapsules given that the higher the concentration of the dye in the microcapsule the better the detection of the crack.


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**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (571)272-1504. The examiner can normally be reached on Monday-Friday from 6am to 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Sheeba Ahmed  
Art Unit 1773  
June 25, 2006